



Australian Government

Australian Fisheries Management Authority

**Southern and Eastern Scalefish and Shark
Fishery Resource Assessment Group
(SESSF RAG)
Chair's Meeting**

Meeting Minutes

Date: 15 March 2018

Venue: AFMA Office, Canberra

Attendees

Members	
<i>Dr Cathy Dichmont</i>	<i>SESSFRAG Chair</i>
<i>Mr Sandy Morison</i>	<i>SERAG and SharkRAG Chair</i>
<i>Mr Lance Lloyd</i>	<i>GABRAG Chair</i>
<i>Dr Sarah Jennings</i>	<i>Economics Member</i>
<i>Mr George Day</i>	<i>AFMA Member</i>
<i>Dr Giverny Rodgers</i>	<i>A/g Executive Officer, AFMA</i>
Invited Participants	
<i>Dr Geoff Tuck</i>	<i>CSIRO</i>
<i>Dr Robin Thomson</i>	<i>CSIRO</i>
<i>Dr Malcolm Haddon</i>	<i>CSIRO</i>
<i>Mr Simon Boag</i>	<i>SETFIA</i>
<i>Mr Neil MacDonald</i>	<i>GABIA</i>
<i>Dr Ian Knuckey</i>	<i>Fishwell Consulting</i>
<i>Mr Andrew Penney</i>	<i>Pisces Australis</i>
Observers	
<i>Mr Brodie Macdonald</i>	<i>AFMA</i>
<i>Mr Daniel Corrie</i>	<i>AFMA</i>
<i>Mr Doug Ferrell</i>	<i>NSW DPI</i>
<i>Dr Fay Helidoniotis</i>	<i>ABARES</i>

1 Preliminaries

1.1 Welcome & Apologies

- The meeting commenced at 08:30 am.
- Dr Cathy Dichmont (SESSF RAG Chair) welcomed members, invited participants and observers to the meeting. The Chair noted apologies from David Stone (Sustainable Shark Fishing Association).

1.2 Declarations of Interest

- Members and observers provided declarations of interest and conflicts as prescribed in Fisheries Administration Paper 12 and incorporated updates from the previous meeting (**Attachment 1**).
- The Chair asked participants to declare any interests in matters being considered, not limited to pecuniary gain. Such interests were declared by:

- Agenda item 3.1 – Simon Boag, Ian Knuckey and Neil MacDonald.
- Agenda item 4.3 – Simon Boag, Ian Knuckey, Neil MacDonald, Malcolm Haddon, Geoff Tuck, Robin Thomson, Sarah Jennings and Andrew Penney.

Each member left the room in turn while the RAG considered their interests. In each case the RAG noted the conflict of interest and, recognising the participant's knowledge and valuable contribution to the discussions, the attendance of all members, invited participants and observers was supported for each of the discussions under each of the agenda items.

1.3 Adoption of Agenda

- The agenda was adopted (**Attachment 2**).

1.4 Action Items

- The RAG reviewed and commented on the status of the actions from previous meetings as detailed in **Attachment 3**. A list of new action items established at this meeting are outlined in **Attachment 4**. The RAG noted the following:
 - Chairs meeting 2015, action item 1 – Gillnet, hook and trap (GHAT) manager Brodie Macdonald provided an update on proposed protocols for collecting biologicals in the shark sector and scalefish auto-longline sector. The action item has been superseded by observers being deployed in the fishery for 2018 and a proposal from the Southern Shark Industry Alliance (SSIA) for an industry run program to collect biological data.
 - Chairs meeting 2017, action item 10 – The RAG agreed that the SESSF history of management events document should be uploaded to the AFMA website so that it could be readily accessed by stakeholders.

ACTION ITEM 1: AFMA

Upload the SESSF history of management events document to the AFMA website.

- **The RAG agreed that updating the SESSF history of management events document should be included as an agenda item for future SESSFRAG meetings.**
- Data meeting 2017, action item 1 – The RAG agreed to adopt the observer Integrated Scientific Monitoring Program (ISMP) zone definitions and terminology for developing the discard estimates report.
- Data meeting 2017, action item 12 – The RAG discussed whether if, because catches of alfonsino are currently negligible, there is any need to take further action and run a new simulation to obtain revised biological collection targets. The RAG agreed that given the current information available, no action is required as there is not currently a fishery (zero catch

for past three years). The RAG agreed that the current target of 600 is appropriate until catches increase (>10 t caught).

ACTION ITEM 2: AFMA, Kyne Krusic-Golub (Fish Ageing Services)

AFMA to contact Kyne for advice on the cost and amount of work involved in running a new simulation to obtain a current target for Alfonsino with new age estimate data. Also to determine if there are any additional reasons for running the simulation not considered by the RAG.

- Data meeting 2017, action item 14 – Scientific participants advised that this item is now complete and has been reported on.

2 Review of last year's assessment process

2.1 Review of 2018-19 TAC setting process

- George Day summarised the outcomes of the SESSF 2018-19 total allowable catch (TAC) setting process and thanked all those involved. The RAG noted:
Harvest Strategy Framework
 - There were no changes to the Harvest Strategy Framework this season, however western gemfish collection triggers are to be revised this year along with approaches for assessing western gemfish in Commonwealth trawl sector (CTS) and Great Australian Bight (GAB).
 - AFMA will be seeking Shark Resource Assessment Group (SharkRAG) and South East Management Advisory Committee (SEMAC) advice on amending the Harvest Strategy Framework in relation to gummy shark TAC calculations. The agreed allocation for state catches is currently deducted from the recommended biological catch (RBC) to produce the TAC however the state allocation is being exceeded in some circumstances. AFMA will seek advice from RAGs to see if the TAC setting process should be adjusted in response. The South East Resource Assessment Group (SERAG) and SharkRAG member suggested that the process should take into account actual state catches.
 - Significant changes to Harvest Strategy Framework are expected within the next two – three years, resulting from the SESSF Monitoring and Assessment Review Project (SMARP), new Harvest Strategy Policy, multi species biomass at maximum economic yield (B_{MEY}) project etc.*Concerns about RAG process*
 - RAG members have raised concerns with the stock assessment process. SESSFRAG advice is being sought on this issue in agenda item 4.4.*Further work on assessments for 2018*
 - The elephant fish assessment in 2017 was not accepted due to high discards and concerns that discarding was not being accurately represented in the

CPUE series. AFMA is seeking SESSFRAG advice on how to better account for high levels of discards in agenda item 4.2.

- School shark close kin project is ongoing. AFMA will seek SESSFRAG advice at the 2018 data meeting with a view to conducting a tier 1 assessment at the end of the year.
- SERAG had concerns about whether assessments for deepwater shark (eastern) and deepwater shark (western) were providing an accurate index because large proportions of the stocks were protected by deepwater closures. The 2017 assessment was accepted but is scheduled to be re-done in 2018 pending an investigation into habitat and closures.
- The Blue eye trevalla workshop was held on 13-14 March and identified three stocks, a seamount stock and possibly two slope stocks. Slope stocks as a whole will be assessed as tier 4 and the proportion of catch and catch per unit effort (CPUE) will be monitored between the two stocks for evidence of localised depletion in the GAB. It is not possible to do a tier 4 assessment for the seamount stock given the available data but a tier 5 assessment will be conducted. A potential close kin research project is being proposed to look at population size and structure.

Proposed changes to species summaries timing and form

- In response to concerns raised by the RAGs, species summaries will be circulated with meeting papers prior to meetings for review. This will improve the process however summaries will still need to be agreed on and finalised at meetings. Changes to the template may also be recommended by the AFMA Commission.

Corrections required for Total Allowable Catch setting

- The 2018-19 SESSF TAC recommendation paper sent to stakeholders in December contained significant errors relating to:
 - i. East/west discards – For species with an east/west split only eastern discards were considered. A scientific member noted that program was relatively new and has been improved and errors should not occur again.
 - ii. Flathead – All state catch of the flathead quota basket species was deducted from the tiger flathead RBC rather than, as previously advised by ShelfRAG, only deducting state catch of tiger flathead.
 - iii. School whiting – Discards from the CSIRO catch and discards report were incorrectly deducted from the school whiting long-term RBC. Model estimated discards were used to calculate the final TAC recommendation, as per SERAG advice.
- All issues were resolved but new initiatives are being introduced to prevent such issues in the future (Agenda item 4.4). Industry members suggested that meeting time constraints may be the primary issue contributing to errors.
- Industry have stated that there are issues with understanding the weighting of discards. Formulas/a text explanation should be included in future assessments so that it can be understood by industry.

ACTION ITEM 3: Robin Thomson

CSIRO to give a presentation to explain discard weighting calculations and any changes to the approach at the 2018 SESSFRAG Data Meeting.

- An industry participant highlighted industry confidence issues and potential cost implications created by large errors in the TAC calculation. The Chair noted that issues with timing of the assessment process have been consistently raised through SESSFRAG. Mr Penney raised that significant changes brought about by the introduction of new results or new tests into the established assessment process upset the business as usual and there is currently no method for properly incorporating these changes. Scientific members noted that the process for incorporating changes to the assessment should be explicitly documented.

ACTION ITEM 4: AFMA

Discards report and Catch and discard report to be included as an agenda item at the first RAG meetings in September. The numbers produced from those documents will be used to calculate the TACs and provided to MAC.

2.2 Update from the RAGs

South East Resource Assessment Group (SERAG) & Shark Resource Assessment Group (SharkRAG)

- Sandy Morison, Chair of SERAG and SharkRAG provided an updated on the latest SERAG and SharkRAG activities. The RAG noted:
 - A range of issues with have been documented in the paper tabled by SERAG and SharkRAG to SESSFRAG. A large number of unforeseen problems occurred in the 2017 assessment process which have been flagged for advice under agenda item 4.4.
 - Time pressure was a large issue in the assessment process this year. The number of assessments run for this season contributed to the problem.
 - Mr Penney noted that there are two alternative views: either that it is better to spread out assessments or it is better to schedule them mostly in one year. The SMARP has been finalised and can help to inform this decision.

ACTION ITEM 5: AFMA

AFMA to circulate the SMARP implementation plan.

- AFMA will circulate an implementation plan for comment outlining new process guidelines following discussion in agenda item 4.4.

ACTION ITEM 6: AFMA

Agenda item on scheduling of workload should be included on SERAG/SESSFRAG agenda.

- Dealing with discards has been a key issue for the RAGs.

Great Australian Bight Resource Assessment Group (GABRAG)

- GABRAG Chair, Lance Lloyd provided an update on recent GABRAG meetings. The RAG noted:
 - Fewer issues with stock assessments occurred for the GAB as most species were on multi-year total allowable catches (MYTACs).
 - A new Executive Officer has been appointed for GABIA, with Neil Macdonald has taking over from Christian Pyke.
 - Catches for the fishery experienced a dip but have stabilised.
 - The first stage of the FIS has been completed.

3 Implementing the Strategic Monitoring and Assessment Review Project (SMARP)

3.1 Reviewing the Fishery Independent Survey (FIS), electronic monitoring and observers in South East Trawl, Gillnet, Hook and Trap and Great Australian Bight Trawl.

- The RAG noted that members with a conflict of interest could contribute to the discussion but may wish to leave the room for the recommendation. Mr Boag and Dr Knuckey noted that they would voluntarily leave the room for any recommendations.
- The AFMA member introduced the agenda item and noted that a decision was made not to proceed with 2018 FIS pending a review of the FIS program because of budget pressure and interest in e-monitoring. AFMA is now seeking RAG advice on how to best proceed in the future.
- The AFMA member noted key points:
 - The FIS was put in place after a 2005 Ministerial Direction to increase transparency and integrity of catch and effort information.
 - FISs are conducted for the South East Trawl (SET) and the GHAT. Since being established the SET and GHAT programs have been reduced for a number of reasons, but primarily due to costs.
 - Flathead, pink ling and blue grenadier were cited in a New Zealand National Institute of Water and Atmosphere (NIWA) review of the FIS as being well addressed by the FIS and are among the 7 most economically important species in the SESSF.

- CSIRO are undertaking a research project looking at improving the design of the FIS.
- Fishwell is reviewing electronic monitoring in the GHAT and are looking to establish a process for obtaining discard weights and collecting length frequency data.
- ABARES is currently producing a report for e-monitoring in the GHAT which shows that, based on a comparison with e-monitoring data, logbook records of catch and discarded quota have improved. Non-quota species are generally not well reported.
- The SERAG/SharkRAG member advised the RAG that e-monitoring will not replace the FIS in terms of data collected. The AFMA member confirmed this and clarified that e-monitoring should improve industry dependant data. The SERAG/SharkRAG member expressed concerns that e-monitoring is an unproven method for estimating discards. Scientific members noted that discard reporting has not necessarily improved across the board with the introduction of e-monitoring.
- Industry noted that they are interested in both the FIS and e-monitoring as data collection methods. Industry interest in e-monitoring is in improving reporting of quota and non-quota discards to obtain better data for assessments. Industry want to understand if the FIS is working or not, what data e-monitoring will provide and what questions e-monitoring can answer.
- Concerns were raised that the cancellation of the 2018 FIS contradicts the previous advice of the RAG and that the NIWA review was incorrectly referenced within the meeting paper, which members interpreted as stating that it is too early to draw conclusions from the FIS. The SERAG/SharkRAG member expressed concerns that prioritisation has already been given to e-monitoring. The AFMA member clarified that the decision not to proceed with the 2018 FIS was made without RAG consultation due to the timing of producing the budget. RAG members suggested that alternative cost saving options should have been given greater consideration (i.e. postponing observer coverage).
- The RAG noted that the FIS has been a high priority project with high initial investment and expressed concern that the survey could go from a high priority project to being discontinued in a very short time period. Postponing 2018 FIS has significant impact by interrupting the time series.
- RAG members expressed dissatisfaction with process for postponing the 2018 FIS. The preference of the RAG would have been for the decision to be made after seeking RAG advice even if that was needed out of session. There was concern that the decision could distort the outcomes for future discussions on the merit of the FIS.
- Mr Penney noted that the FIS has been cut back since its initial implementation to the extent that it may no longer provide useful information (due to high inter-annual variation), however the value of the data is likely to increase over time. Fewer points hinder the ability to see trends. The structured sampling design of the FIS contributes to this high variability.

- Scientific members confirmed issues relating to the program being reduced and suggested that the RAG should consider whether to improve the design of the program to collect appropriate information or to discard the program completely.
- The AFMA member outlined the recently funded CSIRO project which has objectives to:
 - re-examine some of the underlying assumptions of the survey
 - update data that conditions the model and find efficiencies in sampling design
 - use a data simulation exercise to examine the utility of the estimates given the process and sampling errors that have been observed.

The project draft final report is due in December 2018 and final report due February 2019.

- Dr Knuckey stated that the information to inform the discussion around whether or not to continue the FIS is not currently available, and the matter should be discussed in the context of new policies. Understanding the capabilities of e-monitoring in trawl will also be essential. Given that the FIS has already been cancelled for 2018 a more useful discussion could be had later with that information. The Chair noted that discussion should be had after the results of the new CSIRO study early 2019.
- Some members of the RAG they were disappointed with the AFMA decision to cancel the 2018 FIS without RAG and MAC input.
- The RAG agreed that the reason for the decision was not clearly explained until the meeting. There is also a perception that it will affect the decision process in the future. There was a view that the trade between funding the FIS or e-monitoring is a narrow view of possible savings options given that these two monitoring options provided different types of data. Although the FIS has been eroded in terms of design, it was still seen as having value in principle. A full discussion of all data options should be undertaken so that questions in terms of improving the design, trading with another approach, or stopping the collection of a dataset in the context of the risk-cost-catch trade-off is required.
- The RAG therefore agreed that they are not in a position to make a recommendation. The AFMA member suggested that full consideration should be delayed to a later meeting. Such a meeting should set out the data needs of the SESSF and have full consideration of what data each collection tool is capable of providing. Smaller working groups may be useful in the lead up to the meeting.
- The RAG do not wish to make recommendation regarding the FIS in the long term - until a further discussion at meeting in early (Feb) 2019.

ACTION ITEM 7: AFMA

A meeting to be held in February 2019 to re-asses data collection in the SESSF and review the Fishery Independent Survey (FIS), electronic monitoring and observers in South East Trawl, Gillnet, Hook and Trap and Great Australian Bight Trawl.

- The industry participant noted that the February meeting should consider the SESSF data plan, taking into account different ways of achieving the data needs and defining how much information needs to be collected from each method to achieve the appropriate power. The RAG agreed that the meeting should also take into consideration the SMARP project in terms of efficiency recommendations – i.e. how could data collection be integrated across multiple programs.
- The RAG agreed that the February meeting would discuss cost and primary and secondary data needs. Three decision points should be considered for each data collection tool, to improve the design, trade the data collection off with another method or to stop the method. The meeting agenda should cover:
 - data requirements
 - how can we get them
 - different ways to get same data
 - different data collection packages/scenarios.
 - SMARP
 - FIS Review
 - Harvest Strategy Policy
 - Bycatch Policy
 - e-monitoring review
 - direct input of the FIS into a harvest control rule
 - trade-off between target species and bycatch
 - trade-off between short term and long term data needs
- Dr Knuckey noted that the upcoming declining indicators workshop will also help to inform the workshop.
- The AFMA member noted that protected species strategies being proposed by AFMA require consideration of cumulative impacts on threatened, endangered and protected species (TEPS).
- The SERAG/SharkRAG member noted his submission paper (**Attachment 5**), and asked the RAG to consider the use of the FIS as a direct input to a harvest control rule. Work could be done to assess the value of FIS based stock assessments which would reduce assessment costs.
- Scientific members expressed concern with using FIS based stock assessments as a reference period is still required.
- The Chair noted that the RAG should be open to changes or improvement in the FIS or other data collection when it is considered at the next meeting.
- A decision on whether to conduct a 2019 FIS needs to be made by March 2019. The RAG agreed that February would be the ideal time to conduct the meeting and that the SESSF chairs meeting should be moved earlier and two meetings held together.

4 Research, monitoring and assessments

4.1 Integrated Scientific Monitoring Program (ISMP) report

- AFMA Observer Program Coordinator Nick Mammides introduced the ISMP observer report.
- The RAG recommended that collection targets that had achieved greater than 90% collected should be coded green and deemed appropriate.
- Mr Penney noted that it would be useful to see how the collection is spread across seasons. The introduction of quarterly reports will provide this information and that part of the report will be filled in further as more quarterly reports are produced.
- The RAG agreed that percentage of observer sea day target covered should be included in future reports.
- At the end of the year a percentage of total sea days should also be included.
- Mr Mammides asked the RAG for advice on under sampled species and which of those should be targeted.
- The AFMA member suggested western gemfish should be a priority for collection as an assessment is approaching.
- The RAG recommended that western gemfish should be added onto the crew collected list for the GAB.
- Jackass morwong and pink ling were suggested as a high priority for observer targeting by the SERAG/SharkRAG member. Dr Knuckey clarified that these samples may have been collected however have not yet been transferred to AFMA.
- The RAG questioned school whiting and noted that more effort may need to be directed towards collections for that species.
- The RAG noted that the GHAT overall requires improvement, in particular pink ling. This is largely reflective of the timing of the re-introduction of observers to the GHAT fishery and should improve.
- The RAG had concerns that some otolith targets were not met for key species.
- The RAG acknowledged the contribution of Chris Burns to the observer program and improvements in reporting.

4.2 SERAG action item: dealing with catch per unit effort for high discard species

- The AFMA member introduced the paper. AFMA management was seeking advice on five points relating to dealing with CPUE for high discard species. The RAG provided advice as follows:
 1. AFMA Management sought SESSFRAG advice about limiting the discard multiplier (D/C+1) to 8.
 - When the proportion of discards is >50% it has a significant effect on the model. Dr Knuckey suggested that applying discard estimates at the shot level would lessen the multiplier impact on the model. This assumes that the shots considered are representative. The scientific member noted that the idea has value but requires further investigation.

ACTION ITEM 8: Dr Knuckey, Dr Haddon and Dr Thomson

Drs Knuckey, Haddon and Thomson to work out of session develop a proposed solution or a series of options for overcoming the effect that discards of >50% have on the discard multiplier and how tier 4 assessments should deal with large discards more generally. Options to be considered at the data meeting in July.

2. When undertaking Tier 4 assessments, when should discards be included in the:
 - Reference period catches?
 - CPUE series?
 - When deciding whether to apply discards to the RBC, in a case where there is a trend in discard rate over time it should be incorporated into both the catch rate and catch index.
 - If there is no reliable index of discards decisions should be made on a case by case basis.
 - If the discard rate is high the approach will be dependent on the above discussion regarding whether corrections can be applied for large discards.
3. If discards are not included in the CPUE series, should they be excluded from the reference period?
 - The RAG advised that the approach must be consistent for the reference period and recent period within a species. That is, if discards are included in the reference periods catches they should be included in the recent CPUE index.
4. How should Tier 4 assessments account for circumstances where there is a high proportion of shots having 100 per cent discards?
 - Scientific participants advised that complications occur where discarding involves throwing away the complete catch. When there is no landed catch, effort is not included in the model and this results in the total catch rate estimate being biased high.
 - A scientific participant recommended that in these situations a tier 4 should not be applied as catch rates are not representative of the fishery and violate the assumptions of the model. Mr Penney informed the RAG that a second proposal was to put a cap on discards included in the model.
 - Dr Knuckey suggested scaling against something other than catch of that species – for example discards proportionate to the entire catch.
 - Mr Penney suggested that it would be more relevant to abandon trying to produce an index of abundance and assess the stock in a different way. A scientific participant suggested that, if the proportion of discards in any one year is greater than 50%, the assessment may be abandoned as the CPUE index becomes exponential and is bias and errors are inflated. Refer to action item 8.
5. For Tier 4 assessments, how should discards be accounted for when undertaking TAC calculations? In particular, should discards be deducted from the RBC where discards are included in the reference period catches but not in the CPUE series?

- The RAG agreed that when discards are included in reference period catch they should be deducted from the RBC to calculate the TAC, when not included they should not come off the RBC.

4.3 Five Year Strategic Plan & 2019-20 Research Statement

- AFMA sought advice on the upcoming research needs for their fisheries for potential AFMA or FRDC funding in the context of the SESSF 2016-20 Five Year Strategic Plan. Daniel Corrie presented the draft 2018-19 Annual Research Plan (**Attachment 6**) incorporating comments from SERAG and SharkRAG. There are five key areas for research priorities: target species; bycatch and byproduct; ecosystem based fisheries management; economic and social; and development (gear technology).

The RAG noted that the research items had already been considered by the RAGs and SESSFRAG and provided the following further advice for each section;

AFMA funding in 2018-19 – AFMA Research Committee (ARC)

- The SESSF data services project was added.
- The essential status of the FIS project was noted as pending the result of the February 2019 data prioritisation meeting.

Newly identified research funded by the ARC

- Orange roughy (non-eastern) stock status update – Given the stock status in the east, the RAG noted that industry may wish to leave the western stock and give the stock more time to recover. Industry may write to AFMA advising not to progress project given that they do not wish to invest in developing the fishery at the current time. The RAG agreed to adjust the priority of the project to medium.
- GHAT CPUE calculation methodology – This project is currently being considered by the ARC.
- Pre-1998 data – Pre-emptive work has been done to identify data by Matt Koopman. The RAG agreed to change the project priority to essential.
- Blue eye trevalla close kin desktop study – This project was added following BET workshop recommendation. The project will involve a desktop study looking at the potential for using close kin data for this species. The project will provide a budget, what could be achieved, sample sizes required etc. for applying close kin.
- Blue eye trevalla fishery description – Produce a description of fishery history, including recreational catch, black market etc. Not to be listed as a research projects, AFMA will coordinate with the RAGs to produce the document.

ACTION ITEM 9: AFMA

AFMA to coordinate via the RAGs to produce a description of the blue eye trevalla fishery history, including recreational catch, black market etc.

ComRAC funding research underway

- Undercaught TACs and declining indicators – Workshop planned for April.
- Re-examination of underlying model assumptions and resulting abundance errors in the SESS FIS – Proposal submitted.
- Multi-species fisheries – proposal submitted. Progress was updated to “initial proposal supported by ComRAC 2018”.
- School whiting stock structure and catch composition – AFMA has submitted a scoping document to ComRAC. The SERAG/SharkRAG member suggested approaching NSW fisheries to gauge interest in participating in project.
- Quantifying discards and bycatch reduction strategies GABTF – AFMA has submitted a scoping document to ComRAC. The project has been expanded to include gear optimisation in CTS.

Research projects identified for inclusion in future research plans

- Changes in fishing power – SESSF fleet audit survey distributed to industry will help inform this project and has already received 20 responses.
- Review of SESSF catch history – Update Neil Klaer’s spreadsheet of SESSF catch history. None of the RAGs have ranked this project as high. A scientific member suggested that better documentation of where information came from may be required. Dr Knuckey suggested that the historical data sheet already produced is likely to be the most reliable available and therefore it may be that we just need to provide new updates. The RAG agreed to leave the project as medium priority.

ACTION ITEM 10: AFMA

AFMA to work with assessors to update catch history within the SESSF catch history spreadsheet with information for tier 1 species.

- Updating knowledge of key species biology – Not currently actioned. This project may be relevant for informing impacts of climate change or declining indicators projects. Mr Corrie asked the RAG how to action the project if not for FRDC. The RAG suggested approaching potential supervisors interested in advertising as a PhD project. The Chair suggested identifying priority species based on importance and information with priority given to tier 1 species. Pink ling and tiger flathead were suggested.

ACTION ITEM 11: SERAG

SERAG 2018 to recommend species for prioritisation in the ‘Updating knowledge of key species biology’ project.

- How to account for discards in CPUE analysis – May be replaced or added to at a later date based on action items arising from agenda item 4.2.
- Maximising economic returns for the Australian community – Awaiting under caught TAC project. The Economic member asked the RAG to note that under FRDC

board and Seafood Industry Australia direction the Human Dimensions Research Subprogram are conducting a project on economic and social contributions of fisheries and aquaculture. They will be asking if there are particular case studies that should be embedded in the project. SESSF may wish to put forward case studies to ComRAC.

- Gummy shark project – Removed based on SharkRAG recommendation due to low discard rates.
- School shark – The RAG agreed to change the priority of the project to low pending the results of the school shark assessment.
- Review of Australian sea lion science – The RAG agreed to remove this project from the Research Statement as it will be considered by the Marine Mammal Working Group.
- School shark nursery areas – Currently underway.
- Gummy shark assessment – Needs to be undertaken prior to 2019 assessment. Dr Thomson noted that much of the project has already been completed. The RAG agreed to remove the project from the Annual Research Statement.
- Options for data poor assessments – project complete and removed from the Annual Research Statement. Dr Haddon to present the results to SESSFRAG at the data meeting.

ACTION ITEM 12: Malcolm Haddon

Malcolm to inform SESSFRAG on the results of the data poor assessment project (which is looking at options for dealing with data poor assessments) at July SESSFRAG data meeting.

Project submission from PiSeas

- Mr Corrie introduced the submission and asked the RAG to provide advice on whether there is an interest in pursuing a project to investigate the use of the models proposed in the attachment.
- The RAG noted concerns with whether a reference value can be provided by the model. Mr Penney noted that the model requires proof of concept. Ground work such as data preparation, sensitivity analysis etc. is not considered by the model currently.
- The Chair noted the need to consider fundamental strategic questions regarding why we want to consider this model in particular. The RAG needs to consider if we want to change the model we use, why and what models are available if we do want to change? Other models are available which have the capacity to perform the same or a similar function.
- The RAG noted that costing of the model is needed to assess the appetite for change.
- The RAG noted that this is not currently a research priority and will not be included in the plan but more information should be provided for later consideration.

ACTION ITEM 13: SERAG

SERAG to strategically discuss the utility of the model proposed by PiSeas at their next meeting, pending the outputs of the demonstration assessments.

Assessments for 2018

- The RAG agreed on the following adjustments to the 2018 assessment schedule:
 - Re-do eastern and western deepwater shark tier 4 assessments pending investigation of habitat and closures (SERAG recommendation).
 - Blue eye trevalla workshop recommendation – Tier 5 assessment to be conducted for seamount blue eye trevalla in 2018.
 - Blue eye trevalla workshop recommendation – New tier 4 to be conducted for slope blue eye trevalla in 2018.
 - Elephant fish to be assessed this year as a tier 4 depending on the outcomes of Dr Haddon’s work and discussions around discards. Also scheduled as a tier 5 assessment for 2018.
 - Alfonsino assessment to be pushed back due to low catches.
 - Dr Knuckey proposed an investigation of the use of tier 5 assessments for some byproduct species and/or current tier 3/4 species.

ACTION ITEM 14: SESSFRAG

Application of a tier 5 assessment for some byproduct species and/or current tier 3/4 species to be considered in an additional agenda item at the SESSFRAG July Data Meeting when considering the assessment program – to be discussed in the context of the new harvest strategy policy.

4.4 Review of stock assessment timing, process and accessibility

AFMA member introduced the agenda item, listing suggested guidelines to be introduced for the stock assessment process (**Attachment 7**). The RAG recommended the following changes;

- “Assessments to be provided to the AFMA EO at least one week before the meeting for sending out, unless otherwise agreed by AFMA and the Chair”. Mr Penney suggested that this needs to be edited to “unless otherwise agreed by AFMA and RAG members”. The RAG could then agree to defer the assessment for another year or to move the meeting to a later date.
- The RAG suggested that there needs to be threshold dates for when data is provided to the stock assessment scientists - scientific members agreed that this needs to be by end of April each year.

ACTION ITEM 15: AFMA

AMFA to confirm with the data team that this is possible to provide data for stock assessments to stock assessment scientists by the end of April each year.

- “Base cases and sensitivities to be agreed by the RAG at the first meeting before presentation of the final assessment. Any significant changes to base cases or sensitivities to be agreed by the RAG”. The Chair suggested that this could be addressed by notifying AFMA and the Chair of any changes to the base cases and the decision may be made to consider this potential change in an additional telephone meeting of the RAG prior to the final meeting. The RAG supported the suggestion.
- In order to create access to data used in assessments Mr Penney suggested a similar model to what is currently used in New Zealand where AFMA would archive the data. This would need to be written into contracts with those conducting the stock assessments. Scientific members noted that this may create issues with intellectual property. Dr Knuckey suggested that work done under the contract may be deemed the intellectual property of AFMA whilst prior knowledge is the intellectual property of the individual conducting the assessment. The RAG agreed that it is important for the data to be available so that someone else can pick up the assessment if necessary. The economic member suggested introducing a clause whereby AFMA could only pass the code on to a person who has been successful in gaining the contract to conduct the stock assessment.
- The RAG agreed that AFMA should hold the groomed dataset and control file and will review on a case by case basis whether the data should be released, possibly in consultation with the original author.
- The RAG agreed that assessment reports should be available online. CSIRO questioned when stock assessments can be made public. AFMA member noted that this is as soon as they have been finalised by CSIRO and the RAGs.

ACTION ITEM 16: AFMA

AMFA to amend the finalised guidelines and circulate them to SESSFRAG, SERAG, SharkRAG and GABRAG.

5 Other business and next meeting

- No other business was tabled.
- The next SESSFRAG Data meeting is scheduled for July 2018 in Hobart, Tasmania.

The meeting was closed at 4:30pm.



Signed (Chairperson):

Date: 27 April 2018

Attachments

- 1) Declared conflicts of Interest
- 2) Adopted agenda
- 3) Status of outstanding action Items from previous meetings
- 4) List of new action items as of this meeting
- 5) Discussion paper on a FIS-based harvest control rule
- 6) 2018-19 Annual Research Plan
- 7) TAC Setting Process Guidelines

Declared Conflicts of Interest

Member	Declared Interest
Dr Cathy Dichmont	<p>Proprietor of Cathy Dichmont Consulting. Chair of TT RAG. Leads two FRDC funded cross cutting projects with some links to SESSF. Contracted by various State and Commonwealth agencies to undertake various reviews and consultancies not related to SESSF. No pecuniary interest in the SESSF.</p>
Mr George Day	<p>Employed by AFMA; Senior Manager of Demersal and Midwater Fisheries. No interest, pecuniary or otherwise.</p>
Mr Lance Lloyd	<p>GABRAG Chair. Member of GABMAC and SESSFRAG. Director; Lloyd Environmental Pty Ltd. Research Fellow; Federation University Australia</p>
Mr Sandy Morison	<p>Director of Morison Aquatic Sciences. Chair of SharkRAG, SERAG and the Tropical Rock Lobster Working Group. Scientific member on SEMAC. Contracted by government departments, non-government agencies and companies for a range of fishery related matters including research and (by SCS Global Services) for MSC assessments of AFMA managed and other Australian and international fisheries. No pecuniary or other interest in the SESSF.</p>
Dr Sarah Jennings	<p>Economics member on SERAG. Economics coordinator, FRDC Social Science and Economics Research Program. Member of AFMA Economics Working Group. Independent economics consultant. No pecuniary or other interest.</p>
Invited Participant	Declared Interest
Mr Simon Boag	<p>Atlantis Fisheries Consulting Group clients include: SETFIA, SPFIA, SSSIA whose members hold vessels and quota rights individual Commonwealth vessel and quota rights holders Non-beneficiary Director of two fishing companies in the SESSF Industry member on both ShelfRAG and SlopeRAG FRDC funded applications from time to time</p>
Mr David Stone	<p>Executive officer of Sustainable Shark Fishing Incorporated</p>

Mr Neil MacDonald	Executive officer of the Great Australian Bight Industry Association. Executive officer of Surveyed Charter Boat Owners and Operators Association South Australia. Executive officer of Southern Fishermen's Association. Executive officer of Saint Vincent Gulf Prawn Boat Owner's Association. Executive officer of South Australian Blue Crab Pot Fishers Association. Executive officer of Marine Scale Net Fishers Association. Director NMAC(SA) P/L.
Dr Geoff Tuck	Employed by CSIRO. Involved in Stock assessments. Interest in obtaining funding for future research. Principle investigator on the SESSF stock assessment project and marine closures project.
Dr Malcolm Haddon	CSIRO stock assessment scientist. Member of GAB RAG, Northern Prawn RAG, Sub-Antarctic RAG and Sub-Antarctic MAC. Principle investigator on the FRDC research project: 2012/201 Improve catch rate standardizations to account for changes in targeting.
Dr Robin Thomson	CSIRO, Assessment scientist. Acquiring funding for research purposes PI on data services contract and close kin project for school shark.
Dr Andrew Penney	Sole Director of Pisces Australis Pty Ltd, an Australian registered marine and coastal research and management consultancy based in Canberra. As such, I have an interest in any opportunities in this regard. Member of the AFMA ERA Technical Working Group. No shareholding and hold no positions relating to any other companies, including any fishing companies or industry associations
Dr Ian Knuckey	Director Fishwell Consulting Pty Ltd Involved in Fishery Independent Survey (FIS) SESSF and GAB Range of research interests in relation to South East fisheries including the GABTF, SESSF and auto-longline sector. Agent for Olfish Electronic Logbooks NPF RAG Chair, Scientific member on NORMAC Member on Scallop MAC and SquidMAC Provides research advice to various industry associations: SETFIA, GABIA and SSIA Principle investigator on indigenous reference group communication project.
Dr Giverny Rodgers	AFMA, Executive Officer of SESSF RAG. No interest, pecuniary or otherwise.

Adopted Agenda

Date	Times	Venue		
15 March 2018	08:30 am – 4:30 pm	AFMA office, Canberra		
Agenda Item	Description	Purpose	Presenter	Allocated Time
1	Preliminaries			08:30am – 9:00am
1.1	Welcome and apologies		Chair	
1.2	Declarations of Interest		Chair	
1.3	Adoption of Agenda		Chair	
1.4	Action Items		EO/Chair	
2	Review of last year's assessment process			9:00am – 10:00am
2.1	Review of 2018-19 TAC setting process	For Information	George Day	30 mins
2.2	Update from the RAGs	For Information	RAG Chairs	30 mins
MORNING TEA [10:00am – 10:15am]				
3	Implementing the Strategic Monitoring and Assessment Review Project (SMARP)			10:15am – 12:15pm
3.1	Reviewing the Fishery Independent Survey (FIS), electronic monitoring and observers in South East Trawl, Gillnet, Hook and Trap and Great Australian Bight Trawl.	For Advice	George Day	120 mins
LUNCH [12:15pm – 12:45pm]				
4	Research, monitoring and assessments			12:45pm – 3:45pm
4.1	Integrated Scientific Monitoring Program (ISMP) report	For Information	Nick Mammides	30 mins
4.2	SERAG action item; Dealing with catch per unit effort for high discard species	For Advice	George Day	15 mins
4.3	Five Year Strategic Plan & 2019-20 Research Statement	For Recommendation	George Day	60 mins
AFTERNOON TEA [2:30 – 2:45pm]				
4.4	Review of stock assessment timing, process and accessibility	For Recommendation	George Day	60 mins
5	Other business and close of meeting			3:45pm – 4:30pm
- Close of Meeting -				

Status of Previous Action Items

Complete/redundant		Underway	Need SESSF RAG advice	Not yet started	
Prev No.	Agenda Item/Meeting Date	Action Item	Agency/Person	Timeframe	Progress as of Chairs Meeting 2018
1	7.2 E-monitoring update – (11) Chairs meeting 2015	AFMA to distribute proposed protocols for collecting biologicals in the shark sector and scalefish auto-longline sector.	AFMA Brodie Macdonald	After meeting	Superseded by the proposal from the Southern Shark Industry Alliance (SSIA) for an industry run program to collect biological data in the shark gillnet, longline and scalefish hook sectors. AFMA representative will present a verbal update.
4	1.4 Chairs Meeting 2017	Dr Jemery Day (CSIRO) to continue discussions with NSW to better understand what data are available before the data meeting, at which the RAG will make a decision about the assessment noting the plan is for a Tier 1 assessment in 2017.	Dr Jemery Day (CSIRO)	SESSF RAG Data Meeting 2017 (August)	Complete. NSW provided school whiting catch data (total landings) for use in the Tier 1 assessment on a confidential basis. It could not be shared at the SERAG meeting. A base case for the Tier 1 assessment was agreed to at the December 2017 SERAG teleconference with a three-year RBC recommendation of 1615 t.
8	3.2 Chairs Meeting 2017	Dr Robin Thompson (CSIRO) to talk to Dr Andre Punt about providing for uncertainty outputs in the school shark	Dr Robin Thomson (CSIRO)	SharkRAG 2017 (September)	Ongoing. Robin has spoken with Andre and he is considering it. Will need to be done before the assessment in late 2018.

		assessment and reporting this back to SharkRAG in September.			
9	3.2 Chairs Meeting 2017	AFMA to look at potential management responses depending on the different scenarios if the school shark assessment results are accepted as being above the limit reference point.	AFMA	Before SERAG 2017	To be considered in September/October 2018 when SharkRAG is presented with the school shark stock assessment.
10	3.2 Chairs Meeting 2017	AFMA to disseminate the document on catch and management history that was produced some years ago. The document is then to be updated briefly at each RAG meeting as a living document as per the Chairs' suggestion from Tropical Tuna RAG.	AFMA	By the SESSF Data Meeting 2017 (August)	Complete. The document has been updated and is attached (Attachment A).
14	3.4 Chairs Meeting 2017	Dr Ian Knuckey to circulate the latest version of the actual project proposal draft for the under-caught TACs and recovery stocks project and a template of the papers that would be produced by the authors to the RAG as soon as practicable. RAG members are to provide comments on the structure of the proposal and the papers, out of session. The proposal is to be submitted to ComRAC in early April for consideration.	Dr Ian Knuckey (Fishwell Consulting)	As soon as practicable	Complete. The full proposal and papers template circulated via Govdex on 24 January 2018.
1	1.4 2017 Data meeting	Dr Thomson talks to Mr Burns (AFMA Observer Coordinator) to ensure the strata within the ISMP	Robin Thomson (CSIRO)	As soon as practicable	Robin spoke to Chris during the 2017 data meeting. There are slight differences between the ISMP zones

		are aligned with the strata used by CSIRO to develop the discard estimates report, as well as discuss the ISMP target calculations.	AFMA Observer section		recognised by the Observer program and those used in processing the data. It is proposed that the processing adopt the Observer definition.
2	1.4 2017 Data meeting	Dr Knuckey to provide an inventory of all otolith samples in Fishwell Consulting's possession and to the stock assessment people (the relevant RAGs). Each RAG is then to decide if the data and samples are required to be transferred to Fish Ageing Services to be archived and potentially processed if to be used in future stock assessments.	Ian Knuckey	As soon as practicable	
3	1.4 2017 Data meeting	Dr Little to provide a document on history management events in the SESSF by Helen Webb/Tony Smith to provide to the SESSF Executive Officer to assist in developing the SESSF timeline. AFMA is to also ask Parks Australia within the Department of Environment for any information they may have relevant to the history of the fishery.	Rich Little AFMA	By SERAG 1	Complete. AFMA has drafted the SESSF timeline and consulted with Parks Australia on relevant sections. The document is attached (Attachment A).
4	2.1 2017 Data meeting	Mr Burns (AFMA Observer Coordinator) to include an update for the current calendar year ISMP data for subsequent SESSF Data Meeting ISMP updates.	AFMA Observer section	By the next SESSF Chair's meeting (March 2018)	Complete. See agenda item 4.1.

5	2.1 2017 Data meeting	AFMA Observer team to report on ISMP actuals versus targets on a quarterly basis, as opposed to annually, to the RAG using a traffic light system where appropriate.	AFMA Observer section	By the next SESSFRAG Data meeting 2018	Complete. AFMA observer section has agreed to provide quarterly reports and will produce reports in May, August, November and February. Note that there will be some time lag in initial reports but has been requested 6-8 week maximum lag time.
6	2.1 2017 Data meeting	AFMA (GHAT Team) and SharkRAG to update the Data Plan with the correct zoning for school and gummy shark to be consistent with the on-board ISMP zones.	AFMA (GHAT Team) Sandy Morison (SharkRAG)	As soon as practicable	This was discussed at the GHAT Data Working Group in March 2017. The scientific participants noted that whilst a finer scale spatial zoning would be desirable, the current plan is sufficient for stock assessment purposes for many species.
7	2.3 2017 Data meeting	Dr Thompson to examine the two approaches for calculating CV's in the Mike Bergh design and discern which one is more appropriate for future discard estimate calculations.	Robin Thomson (CSIRO)	As soon as practicable	Ongoing. Roy Deng will look into this when he next calculates discard rates, if time allows after recalculating discards for the whole time series and comparing the earlier work of Judy Upston with his results. If available, result will be presented to the Aug 2018 SESSFRAG Data meeting.
8	2.3 2017 Data meeting	Dr Thompson to develop a method for calculating discard rates that ensures no result is a value greater than 1, and to ensure the mathematics are adequately documented.	Robin Thomson (CSIRO)	As soon as practicable	Complete. This has been done and was incorporated into the 2017 Discard report.
9	2.3 2017 Data	Dr Thomson to coordinate a small group (including Miriana Sporcic, Ian Knuckey and Sandy Morison) to	Robin Thomson (CSIRO)	Before SERAG 1 - 2017	Complete. This has been done and was incorporated into the 2017 Discard and Catch reports.

	meeting	discuss the statistics and calculations associated with discard rate estimates, and to develop an options paper for SESSFRAG to consider and discuss via teleconference. The teleconference needs to occur before the first SERAG meeting in 2017 (20 September).	Miriana Sporcic (CSIRO) Ian Knuckey (Fishwell Consulting) Sandy Morison (SERAG & SharkRAG Chair)		
10	2.3 2017 Data meeting	SEMAC to review a change in gear size in the blue grenadier fishery when there is evidence of a large amount of small grenadier coming through the fishery, particularly in light of the reworked discard calculations.	SEMAC AFMA	As soon as practicable	Complete. SEMAC have been notified of the action item and will consider it in their meeting on 6-8 February 2018 as discards were 51% in 2016.
11	2.5 2017 Data meeting	Fishwell Consulting to provide a list of the most caught SMARP secondary species captured during the winter FIS for SERAG 1 - 2018 to consider in conjunction with the updated ERA results, to determine which species may require additional targeted data collection.	Ian Knuckey (Fishwell Consulting)	By SERAG 1 - 2017	Complete. Fishwell Consulting provided the most recent FIS data. AFMA have drafted a list of most caught species. This will be used to inform any decisions pending completion of the ERAs and review of the FIS. An item has been added to SERAG 1 agenda.
12	2.5 2017 Data meeting	Mr Krusic-Golub (FAS) to provide some data on the inputs that were originally used in the original simulation study for Alfonsino. AFMA to look at the outputs from the original work.	Kyne Krusic-Golub (Fish Ageing Services) AFMA	As soon as practicable	Very few Alfonsino age estimates were available at the time when the original simulation was conducted. The target number of 600 was chosen because the ageing carried out by NZ suggested that this species was similar to Gemfish in regards to age composition and longevity.

					There are now 2731 age estimates for this species, so I suggest that this data be considered and a new simulation should be run to obtain a current target for Alfonsino.
13	2.5 2017 Data meeting	Mr Krusic-Golub (FAS) to provide a CV analysis of the age and length data reports for all species to AFMA.	Kyne Krusic-Golub (Fish Ageing Services) AFMA	As soon as practicable	<p>Kyne circulated several reports after the meeting to the RAG that related to sample size and design (Attachment B, C and D). The report titled “SEF final ageing 2006 in age simulation” (Attachment E) contains a table on page 4 of Appendix 6 which details the numbers of samples available for each species at the time and the breakdown of the stock/management delineations.</p> <p>Robin also provided a copy in response of the Bergh paper (Attachment E), which makes reference to the 2006 report.</p>
14	2.7 2017 Data meeting	CSIRO to check whether the current recreational data table 37 (Information Paper 2 – Catch Summary 2017) includes total catch or retained catch only as well as checking and adding the CVs	Robin Thomson (CSIRO) Claudio Castillo-Jordan	As soon as practicable	Ongoing. The recreational table will be updated for the 2018 Data meeting.

15	3.1 2017 Data meeting	AFMA to confirm the costing split for the Dogfish project between South East trawl and Shark as outlined in Information Paper 3 on current research projects in the SESSF.	AFMA	As soon as practicable	Complete. The original split attributed all costs to South East Trawl, this has now been corrected. The updated cost split is: South East Trawl: 45% Gillnet, Hook and Trap: 45% Great Australian Bight Trawl: 10%
16	3.3 2017 Data meeting	AFMA to include the CAAB codes for each species, in the SESSF Management Arrangements Booklet for next year.	AFMA	For the next iteration of the SESSF Management Arrangements Booklet	Complete. 2018 Management Arrangements Booklet has been drafted and CAAB codes included.
17	3.4 2017 Data meeting	AFMA to add in the climate change project and other projects that are not currently listed in the table. RAG members are encouraged to send through any projects not already listed in the table to AFMA to be included.	AFMA	As soon as practicable	An updated table of current and recently completed research projects in the SESSF is attached (Attachment F).

New List of Action Items

No.	Agenda Item/Meeting Date	Action Item	Agency/Person	Timeframe
1	1.4	Upload the SESSF history of management events document to the AFMA website.	AFMA	As soon as practicable
2	1.4	AFMA to contact Kyne for advice on the cost and amount of work involved in running a new simulation to obtain a current target for Alfonsino with new age estimate data. Also to determine if there are any additional reasons for running the simulation not considered by the RAG.	AFMA, Kyne Krusic-Golub (Fish Ageing Services)	As soon as practicable
3	2.1	CSIRO to give a presentation to explain discard weighting calculations and any changes to the approach at the 2018 SESSFRAG Data Meeting.	Robin Thomson	2018 SESSFRAG Data Meeting
4	2.1	Discards report and Catch and discard report to be included as an agenda item at the first RAG meetings in September. The numbers produced from those documents will be used to calculate the TACs and provided to MAC.	AFMA	September 2018
5	2.2	AFMA to circulate the SMARP implementation plan.	AFMA	As soon as practicable
6	2.2	Agenda item on scheduling of workload should be included on SERAG/SESSFRAG agenda.	AFMA	As soon as practicable
7	3.1	A meeting to be held in February 2019 to re-asses data collection in the SESSF and review the Fishery Independent Survey (FIS), electronic monitoring and observers in South East Trawl, Gillnet, Hook and Trap and Great Australian Bight Trawl.	AFMA	February 2019
8	4.2	Ian, Malcom and Robin to work out of session develop a proposed solution or a series of options for overcoming the effect that discards of >50% have on the discard multiplier	Ian Knuckey, Malcolm Haddon and Robin Thomson	2018 SESSFRAG Data Meeting

		and how tier 4 assessments should deal with large discards more generally. Options to be considered at the data meeting in July.		
9	4.3	AFMA to coordinate via the RAGs to produce a description of the blue eye trevalla fishery history, including recreational catch, black market etc.	AFMA	As soon as practicable
10	4.3	AFMA to work with assessors to update catch history within the SESSF catch history spreadsheet with information for tier 1 species.	AFMA	As soon as practicable
11	4.3	SERAG 2018 to recommend species for prioritisation in the 'Updating knowledge of key species biology' project.	SERAG	SERAG Meeting 2018
12	4.3	Malcolm to inform SESSFRAG on the results of the data poor assessment project (which is looking at options for dealing with data poor assessments) at July SESSFRAG data meeting.	Malcolm Haddon	2018 SESSFRAG Data Meeting
13	4.3	SERAG to strategically discuss the utility of the model proposed by PiSeas at their next meeting, pending the outputs of the demonstration assessments.	SERAG	As soon as practicable
14	4.3	Application of a tier 5 assessment for some byproduct species and/or current tier 3/4 species to be considered in an additional agenda item at the SESSFRAG July Data Meeting when considering the assessment program – discuss in context of the new harvest strategy policy.	SESSFRAG	2018 SESSFRAG Data Meeting
15	4.4	AMFA to confirm with the data team that this is possible to provide data for stock assessments to stock assessment scientists by the end of April each year.	AFMA	As soon as practicable
16	4.4	AMFA to amend the finalised guidelines and circulate them to SESSFRAG, SERAG, SharkRAG and GABRAG.	AFMA	As soon as practicable

Discussion paper on a FIS-based harvest control rule.

Background to the SET FIS

The SET FIS was eventually designed and implemented in response to the Ministerial Direction in 2005 to provide a fishery-independent means of estimating the relative abundance of species caught in the SESSF. But the need for such fishery-independent information was flagged in the early 1990s when the quota system was first considered. It was recognised as being important because of the effect of the introductions of quota on fisher behaviour and hence on the CPUE indices obtained from commercial logbook data. Such CPUE indices, although standardised to account for some known confounding factors, are also known to remain vulnerable to unknown levels of bias from a range of factors that affect fishers' behaviour and their ability to catch fish. These biases remain ignored because either they cannot be estimated (such as avoidance/targeting) or because there has been no willingness to examine them (such as increases in fishing power).

The FIS that was intended to be run for the SET (summer and winter surveys every year) has been considered to be too expensive and has been reduced to a quarter of this intended frequency (one winter survey every second year). Although CVs for many species have been within desired bounds, higher than expected survey to survey variability has also cast doubt on the value of the FIS for stock assessments. The SET FIS was independently reviewed by NIWA and, although they identified some areas for improvement, they concluded that it was too early in the time series to make robust decisions on whether they should be continued or not, and for which species they may be most useful. They also concluded that the survey time series was too short to make meaningful comparisons with CPUE trends.

The current harvest strategy includes a range of stock assessment methods of which most rely on logbook-based CPUE. The model-based integrated assessment methods used at Tier 1 are generally recognised as the preferred analytical approach for stock assessments but their ability to track stock trends is entirely dependent on the quality of the data that they are provided. Fishery-independent surveys are also recognised as being preferred as robust providers of indices of abundance but they must be undertaken in a way that provides estimates with sufficient precision to be useful. At present results of the SET FIS are not influential on Tier 1 stock assessments because of their variability and short time series.

The future of the FIS remains in jeopardy because of ongoing concerns about its costs (despite most of these feeding directly back to industry members) and its ability to deliver a useful alternative to current fishery-dependent indices of abundance. If the FIS is terminated it is highly unlikely that it would ever be reinstated. Therefore, before a final decision on the future of the FIS is made, I am proposing that an additional option for the use of the FIS be explored as a possible way to realise the benefits of fishery-independent

indices of abundance, without adding greatly (or possibly at all) to overall assessment costs.

Proposal

The proposed option involves evaluating the use of the FIS as a direct input to a harvest control rule (HCR) without the additional time and costs of other stock assessments. The analogy would be the use of DEPM methods for small pelagic species which provide estimates of abundance that are converted to TACs using an agreed schedule of exploitation rates.

The time series of FIS abundance estimates would provide the indicator on which TACs would be adjusted, upwards where the FIS estimate was increasing, and downwards where it was declining. The proposed approach is like a Tier 4 assessment but is one based on the FIS rather than commercial CPUE. Inter-survey variability could be dampened in the same way that is currently used in the Tier 4, by using an average of recent results in the harvest control rule. The now standard use of MYTACs would also help reduce the impact of survey to survey variability as (depending on their frequency) the data from multiple FISs would be available to inform an update to an assessment.

The difference to the current Tier 4 approach is that there is no equivalent to the reference period that is available when using the FIS that would provide the target and limit reference points. The lack of obvious reference points is also an issue for current Tier 1 species for which the assessments provide estimates of stock depletion relative to agreed reference points. Options for addressing this lack of reference points would need to be considered, particularly to assist in the transition to a different HCR. Over time the FIS would provide its own time series of abundance estimates that would provide increasing confidence about whether a HCR was delivering the desired stock outcomes.

A key potential benefit of the proposed approach is that, for species that are currently at Tier 1, the use of a FIS-based HCR could avoid the expense of current integrated model-based assessments. Savings from removing the need for Tier 1 stock assessments could be used to fund the FIS.

In the SESSF, the quality of the data streams that are used in stock assessments has become increasingly degraded, particularly the key abundance indicator, logbook-based CPUE. This has been affected by the introduction of the quota system, changes to markets, changes in fishing technology, turnover of skippers on vessels (which contributes to the 'vessel' effect), structural adjustments in the industry, and ongoing changes to management measures including closures and TAC adjustments. Few if any of these factors can be accounted for by statistical standardisation methods. These problems are not the result of, or necessarily lead to, inaccuracies in the recording of catch or effort (though these would be problematic if they were significant). As a result, improvements to logbook accuracy (which is one intended outcome of EM) would not greatly improve CPUE as an index of abundance and hence not improve the quality of assessments that remain reliant on such indices.

The other data sources that are used in Tier 1 assessments are also under strain, with size and age composition data frequently showing variability that is clearly unrelated to changes to stock characteristics and is most likely a reflection of ongoing issues with variability in sampling representativeness or fishing practices. The move to giving greater weight to CPUE in Tier 1 assessments may have reduced the impact of this variability on assessment results but also raises questions about the usefulness of maintaining such expensive data streams. The SMARP project reviewed current arrangements for collecting a range of data types but did not consider the option proposed here, which has the potential to reduce the types of data that need to be collected. In particular, a FIS-based HCR would not use size or age composition data, and ceasing to collect them would provide additional savings that could help fund the FIS.

For species that are currently at Tier 4, the use of a FIS-based HCR would avoid the need to undertake standardisation of logbook-based CPUE (an additional cost saving). Otherwise, (apart from the reference point issue raised above) a FIS-based assessment would simply replace a sub-optimal fishery-dependent CPUE index with a fishery-independent one.

A harvest strategy that was based on the results of the FIS would be analytically simpler than current stock assessments, particularly those at Tier 1. It would also be a simpler and more easily understood approach than an integrated assessment model and probably less contested than analyses of CPUE data. RAG meetings and discussions are likely to be much more straightforward and take much less time, providing additional savings.

Results of each winter FIS could potentially be available to inform TAC decisions for the following year. This would reduce the current 18 month lag in the assessment process to less than 12 months (depending on the stage in the MYTAC cycle).

Improvements to the design of the FIS are also being considered that could improve its ability to provide robust indices of abundance for the main target species in the SESSF.

In summary, the following are considered some of the advantages and disadvantage of the proposed approach:

Advantages

- Remove the reliance on commercial CPUE with all its drawbacks and place fishery-independent data at the heart of stock assessments.
- Save money on stock assessments, CPUE standardisation, size and age composition data collection, and RAG meetings.
- Speed up the whole stock assessment process and potentially reduce the lag between data collection and TAC determination.
- Provide a more easily understood process for all stakeholders.
- Add weight to FIS results and strengthen the argument for continuing the FIS (and might eventually lead to increased FIS frequency).
- There are a number of benefits of maintaining the FIS, beyond its ability to provide an input to stock assessments for primary target species. In particular the ability to provide fishery-independent indices of abundance for a range of secondary, byproduct and bycatch species should not be undervalued.

Disadvantages

- There are several species for which the FIS does not provide a good index of abundance, and other methods may still be needed for them.
- Other potentially informative data sources would be ignored.
- High inter-annual variability in the data could lead to unacceptably high TAC variability.
- FIS-based reference points would need to be developed to replace those currently in use.
- The transition to a new HCR would need to be managed to avoid large changes in TACs that reflected assessment changes rather than stock changes.

Testing of the approach

At present the usefulness of the FIS for TAC setting is yet to be demonstrated, but there are five years of the results of the winter FIS now available that would enable the performance of candidate FIS-based HCRs (and survey frequencies) to be evaluated. The project to implement the findings of the SMARP project has proposed MSE testing of several scenarios for data collection and assessments [scope of this project to be checked]. The addition of a FIS-based harvest strategy could be added to allow the evaluation of this option prior to any decision about the future of the FIS.

Sandy Morison

6 March 2018

Southern and Eastern Scalefish and Shark Fishery Annual Research Statement for 2019-20

This Southern and Eastern Scalefish and Shark Fishery (SESSF) Annual Research Statement was developed by AFMA, in consultation with the SESSF Resource Assessment Group (SESSFRAG), South East Resource Assessment Group (SERAG) and the South East Management Advisory Committee (SEMAC). It identifies areas of high priority research for both AFMA and potential FRDC funding in 2019-20 and will be presented to the AFMA Research Committee (ARC) for consideration at their October 2018 meeting as part of the 2019-20 funding round.

AFMA funding in 2019-20 - AFMA Research Committee (ARC)

Title	Objectives and component tasks	Evaluation		
		Total cost (\$) (approx. only)	Priority/ranking	Feasibility
RESEARCH UNDERWAY				
Integrated Scientific Monitoring Program (ISMP)	AFMA observer program, logbooks	\$600k (funded by the Fishery, not ARC)	Essential	High
Data services	Provision of data summary report and catch and discard summary for RAG consideration and TAC setting process.	\$120k (funded by the Fishery, not ARC)	Essential	High
Fish ageing for SESSF quota species	Undertake fish ageing for the SESSF to support stock assessments	\$262k approx (total project cost over three years 2017-18 to 2019-20 is \$786k approx)	Essential	High
Analysis of Electronic Monitoring Data	A comparison of weights recorded by operators (logbook) and weights estimated by AFMA observers against piece counts recorded by	\$70k	High	High

Title	Objectives and component tasks	Evaluation		
		Total cost (\$) (approx. only)	Priority/ranking	Feasibility
	electronic monitoring in order to establish discard weight estimates from piece counts using electronic monitoring. Investigating obtaining length data from electronic monitoring.			
SESS Fishery Independent Survey	To conduct a winter survey which will provide further points in the times-series of fishery independent survey (FIS) indices of abundance. The resulting FIS data series will be included in stock assessments of target species and time series analysis of major by-product and by-catch species. The FIS also provides time series information on the spatial and temporal distribution of a large number of non-commercial fish species and a platform from which biological information (length, sex, maturity, age etc) can be collected in a systematic way from these species.	\$550k approx. \$80k fishing gear (17/18 budget)	Essential*	High

* Pending the result of the February 2019 SESSF data prioritisation meeting.

NEW IDENTIFIED RESEARCH FOR 2019-20				
Stock assessments for the SESSF 2018-19 to 2020-21	The annual assessment presents fishery statistics and catch at size/age data and synthesises existing stock assessment information for the key target species of the SESSF. This is a requirement of the SESSF Harvest Strategy.	\$200k approx. (total project cost over three years - \$900k approx.)	Essential	High
Orange roughy (non-eastern) stock status update	Investigate options for updating stock status understanding of non-eastern orange roughy. Work for 2018/19 FY includes exploration of existing data, including ageing of otoliths. Future work under the proposed Workplan (not for 18/19 FY) includes additional sampling and a Tier 1 stock assessment.	\$60k	Medium	High
GHAT CPUE calculation methodology	Currently CPUE for gillnet-caught species is calculated on a kilogram per shot basis. Given the change to net length restrictions, the RAG has identified a strong need to change gillnet CPUE calculations: <ul style="list-style-type: none"> from catch by shot to catch by metres of net set to better account for zero shots. 	\$30k	Essential	High
Pre-1998 data	Review and investigate observer length data received from PIRVIC from before 1998. This may have resulted from problems introduced when data were migrated from PIRVIC. The issue is that the data in the AFMA databases does not match the CSIRO database in earlier years (eg discard fields and percentage retained vs discarded)	\$30k	Essential	Medium
Blue eye trevalla close kin desktop study	Close kin desktop study looking at the potential for using close kin data for this species. Project will to give a budget, what could be achieved, sample sizes required etc. for applying close kin.	Low	High	High

FRDC funding in 2019-20 - Commonwealth Research Advisory Committee (ComRAC)

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
RESEARCH UNDERWAY				
Under-caught TACs and lack of stock recovery (project scoping workshop)	<p>Determine why some TACs in the SESSF are under caught and propose options to resolve this where possible</p> <p>Investigate the decline or lack of recovery of low biomass stocks given periods of low catches and expected recovery (eg environmental shift, problems with assessment, loss of biomass signal in obtainable data, violation of assumption of stability in biological characteristics of stocks Project should consider incorporation of Atlantis modelling.</p>	Funded 2016/17 ComRAC funding (\$250k set aside)	High – Top priority	High
Re-examination of underlying model assumptions and resulting abundance errors in the SESSF FIS	<ol style="list-style-type: none"> 1) Re-examine some of the underlying assumptions of the survey 2) Use new techniques to potentially create efficiencies in sampling, and 3) Examine the utility of the estimates given the process and sampling errors that have been observed. 	\$92k approx. Accepted by ComRAC (Nov 2016 meeting) for inclusion in FRDC's Dec 2016 call for applications for funding in 2017/18	High	High

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
Multi-species fisheries: harvest strategy implications of maximising economic yield and implementation options for Commonwealth fisheries, with a focus on the Southern and Eastern Scalefish and Shark Fishery (SESSF)	<p>Undertake research with the objectives:</p> <p>1) Consolidation of background information and experience on (i) application of MEY in multispecies fisheries, (ii) the identified SESSF multispecies sub-fisheries and the biological and technical interactions within them, and (iii) the preferred future monitoring and assessment option(s) that have been identified by SESSF Monitoring and Assessment Review Project (SMARP).</p> <p>2) Develop and quantitatively test options for a fishery-wide harvest strategy, including reference points and decision rules that can be applied to the appropriate sub-fisheries and achieve MEY outcomes for the fishery as a whole.</p> <p>3) Integrate the outputs from 2 and 1 (iii) above to produce a complete tested draft revision of the SESSF Harvest Strategy</p> <p>4) Conduct a cost-benefit analysis for implementation of a new draft SESSF Harvest Strategy, drawing on SMARP project analyses and recommendations.</p>	High, costs yet to be determined.	High. Initial proposal supported by ComRAC 2018.	High
School whiting stock structure and catch composition	<p>Determining the stock structure of eastern school whiting stock and better understanding the species composition mix between eastern school whiting and stout whiting.</p> <p>Recommendations for approaching assessment(s) based on the outcomes of stock structure work.</p>	TBC	High. Initial proposal supported by ComRAC 2017.	High
Quantifying discards and bycatch reduction strategies GABTF.	<p>Quantify the performance of discard and bycatch reduction strategies in the GABTF and CTS.</p> <p>Recommendations for reducing discards and increasing NER and boat level profits in the trawl fisheries.</p>	TBC	High. Initial proposal supported by ComRAC 2017.	

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
NEW IDENTIFIED RESEARCH FOR 2019-20				

Research projects identified for inclusion in future research plans

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
Better understanding of protected species interactions and potential impacts	<ul style="list-style-type: none"> Quantitative measure of TEP interactions in the SESSF Assessment of population size for relevant species 	High	Low	Med
Changes in fishing power	Literature review/meta-analysis of changes to fishing power over time. Relates to under-caught TAC project. Commence with desktop study looking at available information. Note work already done on mesh sizes on the Danish seine fleet.	Low	Low	High
Review of SESSF catch history	Document catch history of key SESSF species which would be available for use in assessments.	Low	Medium	High
Updating knowledge of key species biology	Update species biology information for selected key SESSF species which would be available for use in assessments.	Medium - SERAG 2018 to recommend species for prioritisation.	High (not FRDC).	High
How to account for discards in CPUE analysis	In relation to CPUE analysis, assess levels of discards and consider the impact of discarding quota and non-quota species and possible responses. Eg determining how to deal with discards of all or part of catch in a shot.	Low	Medium (may become more important with revised HSP)	High
Maximising economic returns for the Australian community	<ul style="list-style-type: none"> Identify factors which impact on the profitability of individual operators and the fishery. Improve market dynamics. Increase efficiency of vessels. 	Medium	Medium (awaiting under-caught TACs)	

Post-release survival rates of school shark.	Investigation of the post-release survival rates of school shark. Noting school shark survival is relevant for management of school shark (focus on immediate and post-release morality ¹).	Medium Not supported by ARC in March 2017	Low	High
Identification of school shark nursery areas in South Australia	Identify nursery areas for school shark in South Australia for potential future conservation areas. PhD student (Matt McMillan) currently undertaking this work.	Low	Medium	High

SESSF planned stock assessment schedule updated 20 Dec 2017

Species	MYTAC in 2017-18 season	Last Assessed	AOS		GAB FIS		2019	2020	AFMA management comment
			2016	2017	2018	2018			
Alfonsino	3rd year of a 3 year MYTAC	2013					3		Push back because of low catches
Bight Redfish	2nd year of 5 year MYTAC	2015						1	5-year MYTAC, due 2020
Blue Eye Trevalla	Single year TAC	2015	4	4	4/5			4	The blue eye trevalla workshop recommended that in 2018 the seamount BET stock should be assessed as tier 5 and a new tier 4 assessment should be run for slope BET stock.
Blue Grenadier	4th year of a 3 year MYTAC	2013			1				Under-caught and above target
Blue Warehouse	N/A	2014							
Deepwater Flathead	1st year of a 3 year MYTAC	2013	1				1		
Deepwater shark east	4th year of a 3 year MYTAC	2013		4	4			4	SERAG recommended a single year RBC with the assessment to be updated in 2018 pending an investigation into available habitat and historical catch rates inside and outside deepwater closures.
Deepwater shark west	4th year of a 3 year MYTAC	2013		4	4			4	SERAG recommended a single year RBC with the assessment to be updated in 2018 pending an investigation into available habitat and historical catch rates inside and outside deepwater closures.
Elephant Fish	2nd year of a 3 year MYTAC	2013		4	5			4	SESSFRAG agreed to a tier 5 assessment for 2018 pending the results of discussions around handling large discards.
Flathead	Interim single year TAC*	2016	1				1		
Gemfish - East	N/A	2010						1	
Gemfish - west	1st year of a 3 year MYTAC	2011	1/4				1		Reliant on stock structure report from ABARES and ability of data to inform the assessment
Gummy Shark	1st year of a 3 year MYTAC	2013	1				1		
Jackass Morwong	1st year of a 3 year MYTAC	2015			1				
John Dory	3rd year of a 3 year MYTAC	2013		3				3	

Mirror Dory	Single year TAC	2015	4	4		4		Single year TAC in 2017-18.
Ocean Perch	4th year of a 3 year MYTAC	2013		4			4	SESSRAG recommended moving 'batch' Tier 4 in 2017.
Orange Roughy - south	N/A	2000						
Orange Roughy - east	3rd year of a 3 year MYTAC	2006		1			1	
Orange Roughy - west	N/A	2002						Limited effort, bycatch TAC
Orange Roughy - Cascade Plateau	N/A	2009						Limited data
Orange Roughy - Albany & Esp	N/A	N/A						Limited effort, bycatch TAC
Oreo Smooth - Cascade	Long term TAC (catch dependent)	2010						Limited data
Oreo Smooth - other	2nd year of a 3 year MYTAC	2010			5			Limited data
Oreo Basket	4th year of a 3 year MYTAC	2013		4			4	Push back to 2017
Pink Ling	2nd year of a 3 year MYTAC	2015			1			
Redfish	N/A, bycatch TAC	2013		1			1	Await data meeting to see if we run one.
Ribaldo	3rd year of a 3 year MYTAC	2013		4			4	Push back to 'batch Tier 4'
Royal Red Prawn	4th year of a 3 year MYTAC	2013		4			4	Move back to 'batch' Tier 4
Saw Shark	2nd year of a 3 year MYTAC	2013		4			4	Run Tier 4 assessments in 2017
School Shark	N/A (Index of Abundance start 14/15)	2012			1			Potential for 2018 depending on close kin
School Whiting		2009		1			1	Data work in 2016 including ageing issues and NSW data catch rate standardisation and ageing data
Silver Trevally	4th year of a 3 year MYTAC	2013		4			4	
Silver Warehou	2nd year of 3 year MYTAC	2015			1			
			2016	2017	2018	2019	2020	

TAC Setting Process Guidelines

1. To ensure that members have seats at the table and access to power etc., AFMA EOs are to send a list of potential observers to the Chair to approve before the meeting. EOs and Chairs to ensure that only approved observers are in the room.
2. Assessments to be provided to the AFMA EO at least one week before the meeting for sending out, unless otherwise agreed by AFMA and RAG members. There is a risk that changes may be identified after the assessment is submitted but it is important that RAG members have sufficient time to consider the documents before the meeting.
3. Unless there are exceptional circumstances, assessment scientists should be available to discuss the assessment at both RAG meetings (either in person or by phone/video link).
4. AFMA to ensure data is available to allow processing before the SESSF data meeting by providing the data to stock assessment scientists by no later than 30 April each year**.
5. Base cases and sensitivities to be agreed by the RAG at the first meeting before presentation of the final assessment. Any significant changes to base cases or sensitivities to be agreed by the RAG. In the instance where a significant change to the base case or sensitivities arises, the stock assessment scientist should notify AFMA and the Chair and the decision may be made to consider the change in an additional telephone meeting prior to the final meeting.
6. Projections for alternative constant catch scenarios of average and low recruitment for rebuilding species should be run each time they are assessed, to the extent possible.
7. Access to data used in assessments and assessment code should be made available for public release after the assessment, subject to AFMA's data confidentiality policy. AFMA will hold the groomed dataset and control file and will review on a case by case basis whether the data should be released, in consultation with the original author where appropriate.
8. Assessment reports should be available online.

**Pending action item 14.